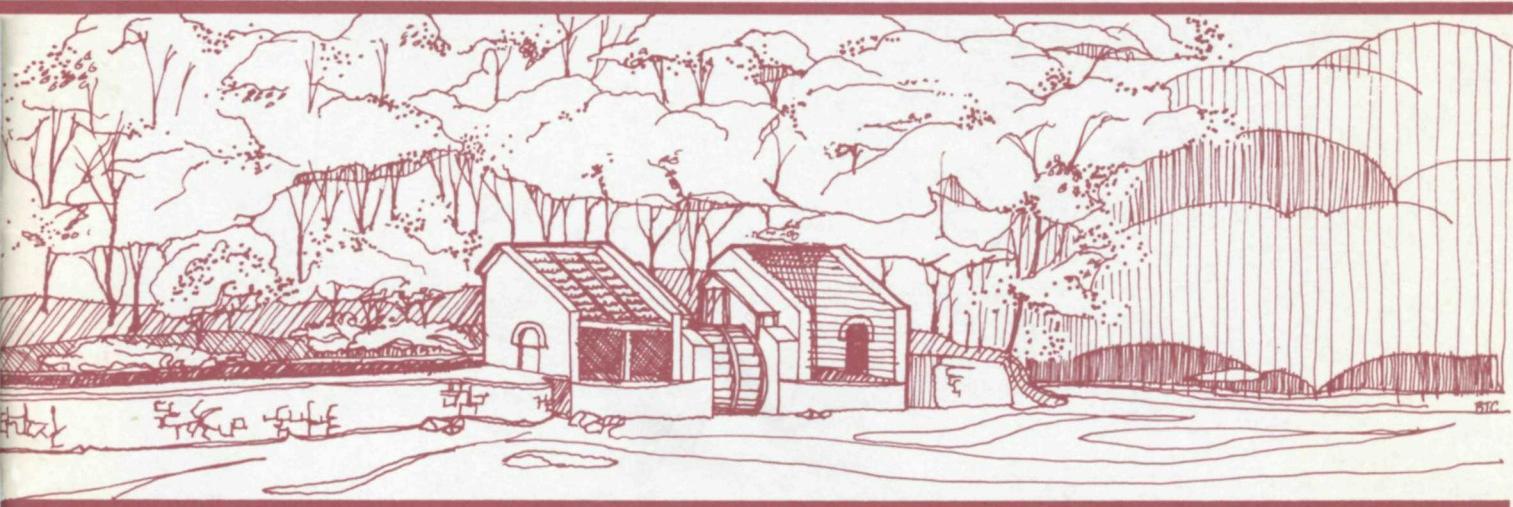
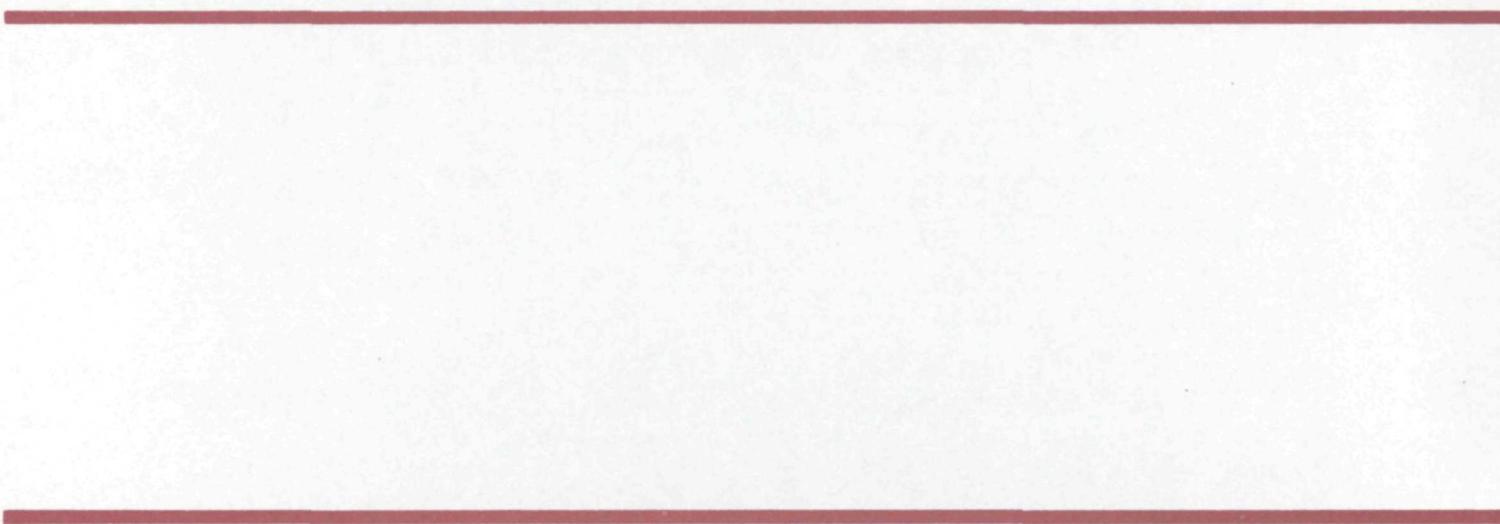


DELAWARE

AN INVENTORY OF HISTORIC ENGINEERING AND INDUSTRIAL SITES



**THE ELEUTHERIAN MILLS-HAGLEY FOUNDATION
AND
THE HISTORIC AMERICAN ENGINEERING RECORD**



DELAWARE
AN INVENTORY OF
HISTORIC ENGINEERING AND INDUSTRIAL SITES

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THE ELEUTHERIAN MILLS - HAGLEY FOUNDATION
GREENVILLE, WILMINGTON, DELAWARE 19807

THE HISTORIC AMERICAN ENGINEERING RECORD
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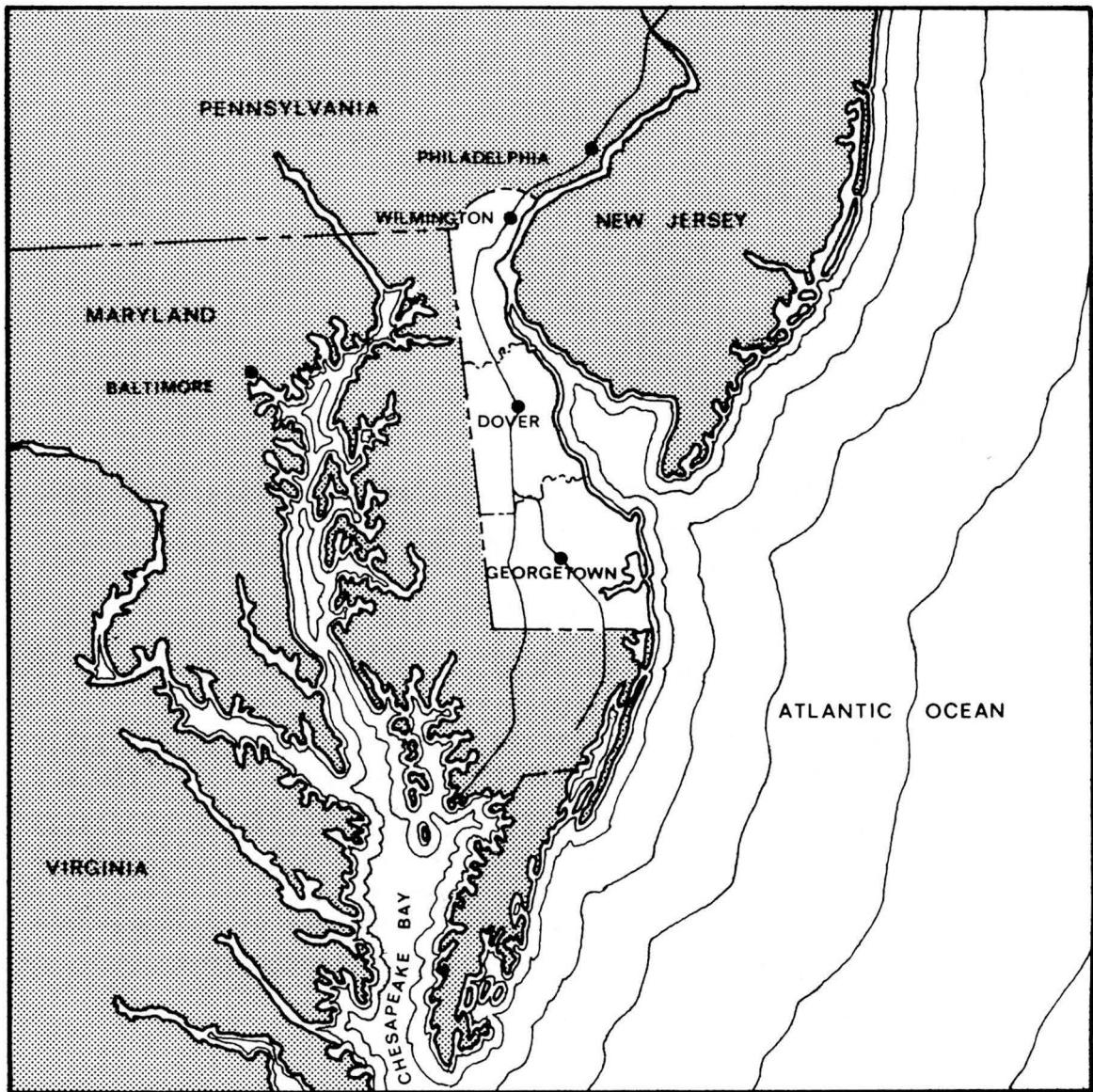
EDITED BY SELMA THOMAS

PRELIMINARY INVENTORY BY TOMMY GUIDER - GRAPHICS BY BRUCE CAVIN

UNITED STATES DEPARTMENT OF THE INTERIOR

1975

DELAWARE AND VICINITY



I N T R O D U C T I O N

In the summer of 1974 the Historic American Engineering Record (HAER), in cooperation with the Eleutherian Mills-Hagley Foundation (EM-HF), began this inventory of engineering and industrial sites in the State of Delaware. The first step in a planned three-year project, the inventory is a site-oriented study that seeks to locate and briefly describe significant industrial and engineering sites built 50 years ago or earlier. Following this inventory, the HAER, again cooperating with the EM-HF, and with the additional support of the State of Delaware Division of Historical and Cultural Affairs, began two summers of in-depth study of selected sites. This survey project will prepare measured drawings, historical monographs, and professional photographs of particularly significant engineering and industrial structures and then deposit these records in the Library of Congress.

Because this inventory represents the first attempt to actually list Delaware's existing industrial and engineering sites, the HAER and the EM-HF decided to publish the results as part of the HAER series of State and regional inventory projects. It has been the editor's task to turn the individual HAER inventory cards into the published work seen here. The inventory attempts to locate all such sites both geographically and historically. Structures are listed, with the appropriate UTM designation and USGS Quadrangle map titles, under the county in which they can be found. When street addresses are

are not available directions are provided. Within the county divisions, the sites are arranged on the basis of function, according to the HAER industrial classification system. There are seven basic classifications: (1) Bridges, Trusses and Aqueducts; (2) Bulk Products; (3) Manufactured Products; (4) Prime Movers and Power Sources; (5) Special Structures; (6) Transportation; and (7) Utilities. All of the classifications are represented in the inventory, though some of the power sources are listed with another structure, such as the Holly steam engine in the Wilmington Pumping Station.

The inventory, in an effort to document the State's earliest techniques as well as their transformations, focuses on the sites of significant industries and the structures surviving their frequent adaptations. The collection of these sites reveals a surprisingly hardy industrial and engineering history. A brief reading of Newcastle County suggests the growing dimensions of that busy economy: machine tool shops, paper mills, and grist mills are well represented in 19th-century Wilmington. Likewise, the two canneries located in Kent County reflect the widespread and vital agricultural interests of the southern part of Delaware. The volume of the entries also reveals an important aspect of the State's growth. The majority of sites are located in Newcastle County, traditionally the most urban and industrial of the three counties. Sussex, with the Iron Pier, the Delaware Breakwater, and the shipping concerns around Lewes and Milford illustrates the State's peculiar relationship to the Atlantic and its coastal trade. The diversity of Delaware's industries is apparent in the bulk and manufactured products listed. The flow of these products is perhaps best illustrated by the transportation sites. The now-defunct New Castle and Frenchtown Railroad, an

early attempt to connect Philadelphia and Baltimore, reflects the volume of early passenger traffic between the two ports. Likewise, the 1829 opening of the Chesapeake and Delaware Canal illustrates the State's importance as the central component of the Delmarva Peninsula. In addition, the many bridges across the Brandywine suggest the early and lasting predominance of that river and the water-powered mills situated along its banks.

Some of these structures--most notably the New Castle and Frenchtown Railroad, the Chesapeake and Delaware Canal, and the E.I. du Pont de Nemours Company--have been the subjects of lengthy studies. Since others have not received the same treatment, the inventory is presented as an initial attempt to record their activities and operations. While both printed and manuscript sources have been consulted, the structures themselves served as the primary document.

The mechanics of the inventory were divided among many people. T. Allan Comp, Senior Historian at the HAER, initiated and directed the project with the help of Eugene S. Ferguson, Curator of Technology at the EM-HF. Tommy C. Guider, a graduate fellow at the EM-HF contracted to begin the study. He prepared a HAER inventory card for each site, locating and selecting the structures that merit both interest and further research. A copy of one of these inventory cards appears in the appendix and the reader will note that it includes information regarding any previous study of the site. In addition to Mr. Guider, Hugh Gibb, Specialist in Industrial Collections at EM-HF and a well-known authority on the railroad in Delaware, provided the brief history of the New Castle and Frenchtown Railroad. In the HAER office, Peter Stott located some of the UTM

coordinates and researched some of the more important sites; Arnold Jones delineated the maps and Carol Minick typed the final text for publication. Bruce Cavin, then a draftsman at the HAER, went over the preliminary inventory cards several times, in an effort to produce the sketches needed to depict the State's varied technologies.

The Delaware inventory has benefited greatly from the cooperation of both individuals and institutions. Since it is the first step in a three-year study, we hope that it will generate further interest and research and we invite the assistance and participation of our readers.

References

Though some individual sites have been examined in other sources, the two most helpful works on the State's general history have been Frank Snyder and Brian Guss, The District: A History of the Philadelphia District U.S. Army Corps of Engineers, 1866-1971 and Delaware: A Guide to the First State, prepared by the Federal Writer's Project of the Works Progress Administration. The Snyder and Guss book presents a comprehensive and detailed history of a subject that would be difficult to record, since many of these structures are underwater. Anyone interested in the State's waterways, their history and physical development, should consult this work. The WPA Guide was useful for identifying names and dates for many of the structures. While its orientation is not technical, the book devotes a great many pages to the State's industries and it is a good source for locating and verifying information on most of the early sites.

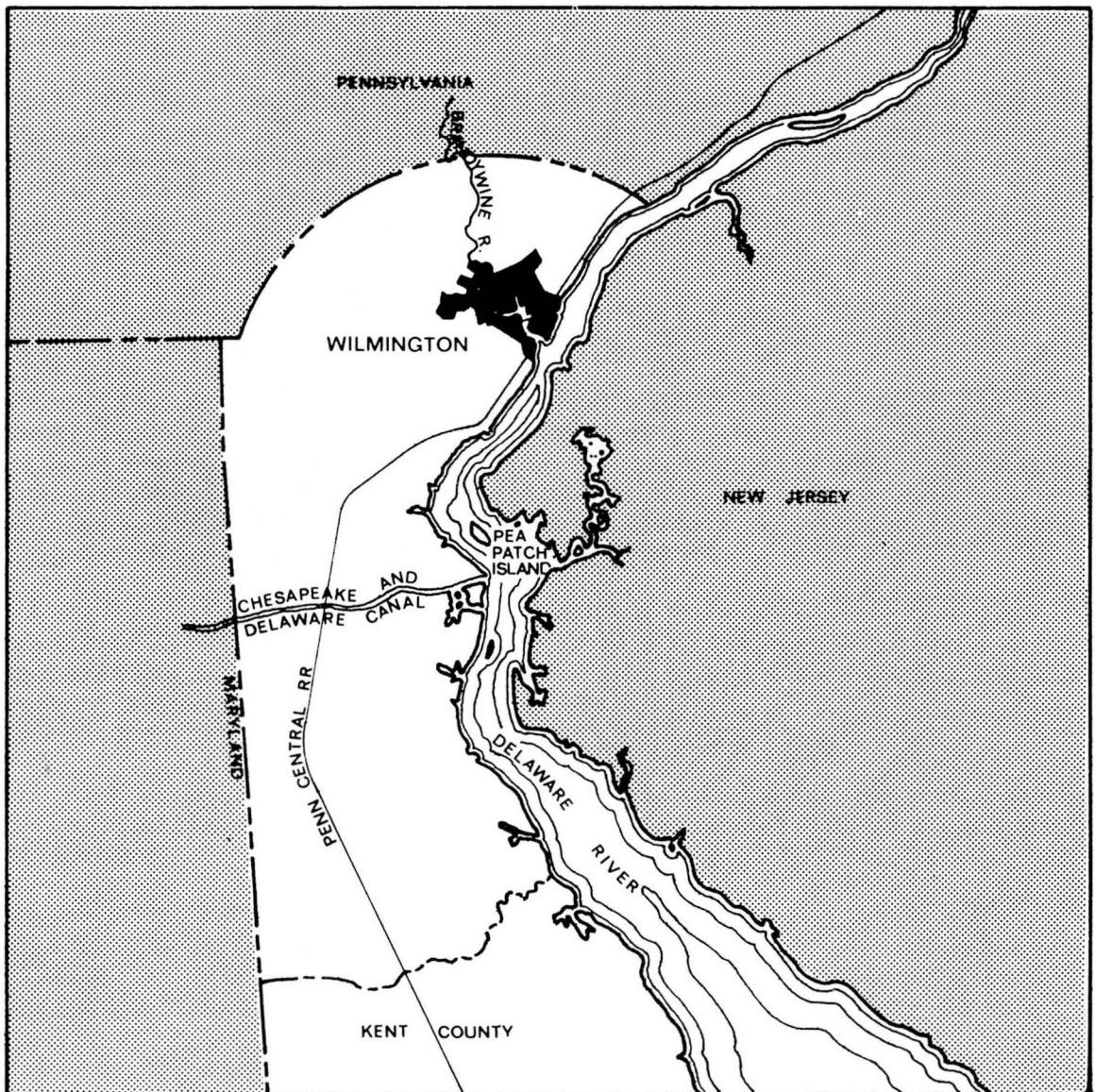
As mentioned earlier, the HAER is conducting a survey project in Delaware during the summers of 1975 and, hopefully, 1976. Those sites selected for survey work during the first summer are noted in the reference notes following the text for each entry. In addition, the Historic American Buildings Survey (HABS) has conducted several surveys in Delaware and these are noted, as are those sites listed in the National Register of Historic Places (NR). Finally, the Eleutherian Mills Historical Library has an extensive collection of company records and these are also noted.

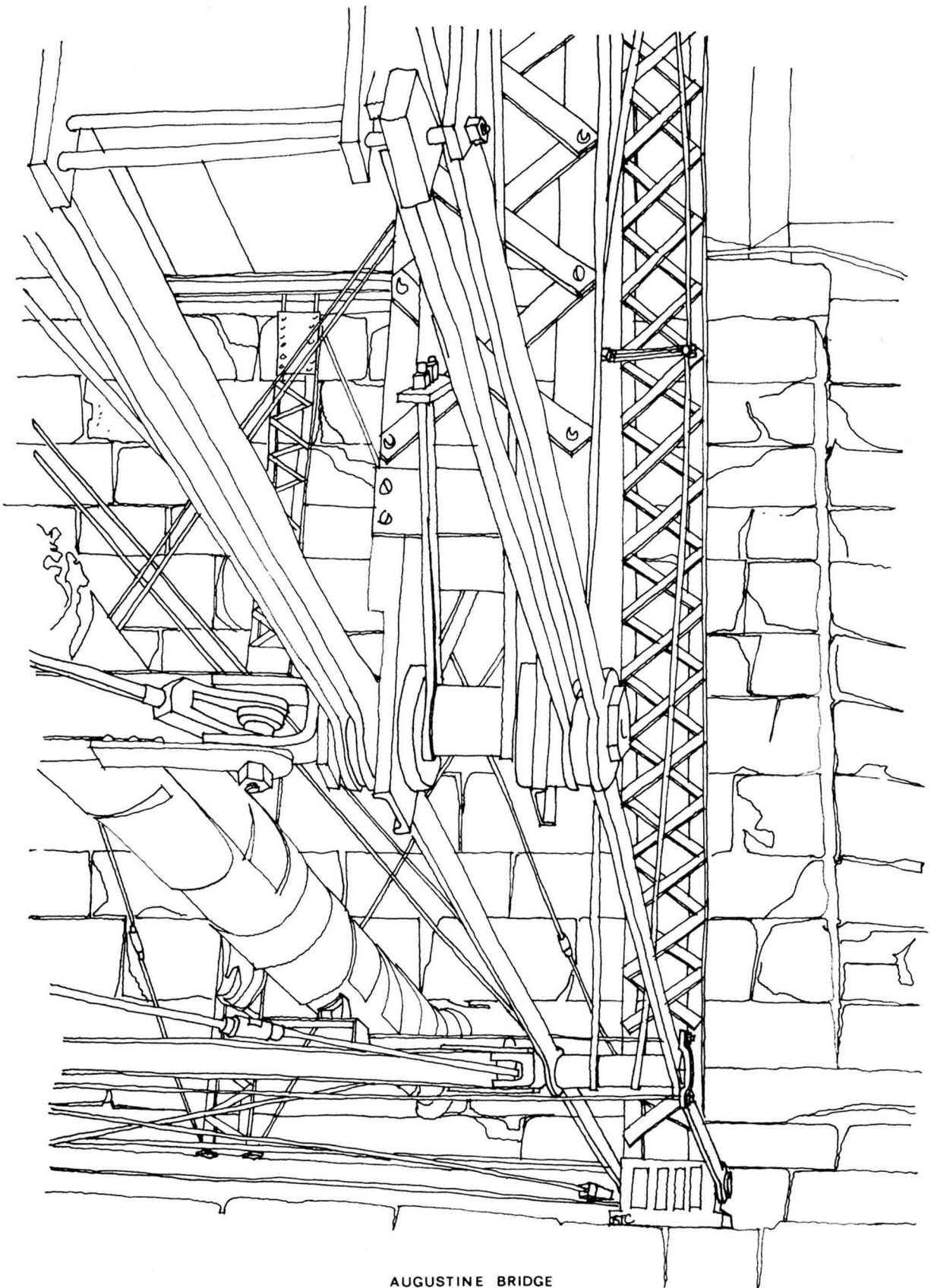
Selma Thomas
July 1975

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NEWCASTLE COUNTY





AUGUSTINE BRIDGE

N E W C A S T L E C O U N T Y

Bridges, Trusses and Aqueducts

ASHLAND COVERED BRIDGE
On Rt. 258, south of Rt. 82
Ashland

Kennett Square
18.443640.4405340

One of the two surviving covered bridges in Delaware, the Ashland Bridge was built between 1850 and 1865. Made of planks secured with hardwood pins, it is a Town lattice truss, with stone abutments on both banks (of Red Clay Creek). It is still in good condition. (Richard S. Allen, Covered Bridges of the Mid-Atlantic States; HABS; NR.)

AUGUSTINE BRIDGE
Augustine Cutoff, over Brandywine River
Wilmington

Wilmington North
18.452280.4401160

Nearly 1,000 feet long and 110 feet above water, the Augustine Bridge was built by the B&O Railroad in 1883. A pin-connected Pratt-type deck truss, it was converted in 1920 to a public highway bridge, owned and administered by Newcastle County. (Anna T. Lincoln, Wilmington, Delaware: Three Centuries Under Four Flags, 1609-1937).

B&O RAILROAD BRIDGE
Over Brandywine River,
south of Augustine Bridge
Wilmington

Wilmington North
18.452280.4401120

This high stone-arch bridge crosses the Brandywine about 100 yards south of the Augustine Bridge. It was built by the B&O in 1910 to replace the earlier bridge.

BELLTOWN RUN RAILROAD BRIDGE
On Rd. 401
Glasgow vicinity

St. Georges
18.438030.4383420

Built in 1832 as part of the Newcastle and Frenchtown Railroad, the Belltown Run Bridge was abandoned in the 1850s. It is a stone arch bridge approximately 10 feet wide and it is still in good condition.

N E W C A S T L E C O U N T Y

Bridges, Trusses and Aqueducts (cont'd)

BRANDYWINE RAILROAD BRIDGE
Across Brandywine River,
Hagley Museum grounds
Greenville

Wilmington North
18.450680.4403740

A narrow-gauge iron bridge, the Brandywine Railroad Bridge was built in two stages. The four stone piers were built in 1863 and the Pratt-type iron truss was completed in 1870. A seldom-used bridge, it has been converted for local vehicular use and it is in excellent condition. (Eleutherian Mills-Hagley Foundation).

NAAMANS CREEK RAILROAD BRIDGE
Phoenix Steel Company, over
Naamans Creek
Claymont

Marcus Hook
18.462160.4406420

A double-arch stone structure, the Naamans Creek Bridge resembles almost all of the Penn Central structures that were built in Delaware in the early twentieth century. It was constructed in 1901 and continues in excellent condition.

PEDESTRIAN SUSPENSION BRIDGE
Over Brandywine River, south of
Augustine Bridge
Wilmington

Wilmington North
18.452290.4401080

This structure, built c.1900, crosses the Brandywine River south of the Augustine Bridge. The suspenders are no longer capable of carrying their load and the bridge is closed to all pedestrian traffic.

RISING SUN BRIDGE
Rising Sun Lane
over Brandywine River
Wilmington

Wilmington North
18.450580.4402100

An iron truss bridge built by Newcastle County in 1928, the Rising Sun Bridge still services traffic across the Brandywine. It is in good condition.

N E W C A S T L E C O U N T Y

Bridges, Trusses and Aqueducts (cont'd)

SMYRNA RIVER MOVABLE BRIDGE

On Rt. 9

Flemings Landing

Smyrna

18.452660.4355960

Built by the Levy Courts of Newcastle and Kent Counties in 1913, the Flemings Landing Bridge No. 452 no longer operates as a movable bridge. It is in good condition.

STONE BRIDGE

Brackenville Rd. over Mill Creek,

N. of Mill Creek Road

Brackenville

Kennett Square

18.440870.4402830

A narrow bridge over Mill Creek, the Stone Bridge was constructed of fieldstone in 1840. Its span is supported by a wide low arch, outlined with long narrow stones. Low check walls form ramps for approaches from either side. (HABS)

THIRD STREET BRIDGE

End of Fourth Street

over Christiana River

Wilmington

Wilmington South

18.453590.4398260

The Third Street Bridge is a draw bridge built in 1916. It is in good condition but it is scheduled to be dismantled by the county in the next few years. (State Department of Highways and Transportation.)

WILMINGTON AND WESTERN ASHLAND BRIDGE

On Rt. 82, west of Intersection

with Barley Mill Rd.

Ashland

Kennett Square

18.443950.4405670

Built by the Wilmington and Western Railroad in 1873, the Ashland Bridge is an iron Pratt truss. It is in fair condition with an irregular truss, since the bridge is slightly skewed.

N E W C A S T L E C O U N T Y

Bridges, Trusses and Aqueducts (cont'd)

WOODDALE BRIDGE
Wooddale Rd. over Red Clay Creek
Hockessin vicinity

Kennett Square
18.445430.4401720

A Town lattice truss built around 1860, the Wooddale Bridge is one of two covered bridges in the State. It is similar to the Ashland Bridge but it has been strengthened recently by the addition of steel girders. It is in fair condition and only carries local traffic. (NR)

Bulk Products

AUBURN MILLS
Route 82
Yorklyn

Kennett Square
18.442200.4406300
18.441720.4406400

In the early 18th century the Marshall family of Yorklyn ran a grist mill and a saw mill on this site. Sometime later, in 1850, the family added a cotton paper mill. This proved a successful addition and in 1923 the same family purchased the American Vulcanized Fiber Company. Renamed the National Vulcanized Fiber Company, the organization played an important role in the area's economy. The early Marshall Mills still stand on the site. Constructed with fieldstone and brick, with a stucco finish, they are in good condition. (Thomas C. Marshall, Jr., The Magic Age of Steam.)

AUGUSTINE PAPER MILLS
North Brandywine Park Drive
Wilmington

Wilmington North
18.452300.4401350

In 1843 Bloomfield Haines Moore and his father-in-law, Augustus E. Jessup, established the firm, Jessup & Moore, which eventually dominated the paper-making business along the Brandywine. In 1845 the two partners purchased the Augustine Mill, an old snuff and flour mill, and adapted the building to the manufacture of paper. Since then the mill has been only slightly altered. Heavy iron and stone construction protects the building against fire. The complex vaults and vats, as well as many of

N E W C A S T L E C O U N T Y

Bulk Products (cont'd)

the rooms, are now seldom used. The original race still carries water through the mill. Currently the mill produces sheet brown paper from recycled boxes. Its drying rollers are also of interest to Delaware history: one set was produced by Pusey and Jones, shortly before that company went out of business, and another set, made by Lukens Steel, uses high-pressure surface steam. (J. Thomas Scharf, History of Delaware, Vol. II.)

JOSEPH BANCROFT & SONS
Wilmington

Wilmington North
18.451750.4402000

Joseph Bancroft, an English Quaker, learned cotton-weaving in the Lancashire mills. In 1831 he established his own cotton mills on the Brandywine. They brought him a thriving business and in 1860 Bancroft added bleaching and dyeing to his establishment. The company continued to expand in both size and operations. By the 20th century Joseph Bancroft & Sons was engaged in the dyeing and finishing of cotton goods as well as the manufacture of book-cover cloths and window-shade material. In the 1940s it was hailed as the largest plant of its kind in the world. Most of the older buildings still remain in good condition and the complex still contains much of its 19th-century equipment. The buildings are being renovated for alternative use and the current owner now rents some of them as office and storage space. (WPA, Guide.)

BRECK'S MILL
End of Breck's Lane
on Brandywine River
Wilmington

Wilmington North
18.450345.4402240

In 1813 Louis McLane and George Milligan bought a mill site from Vincent Gilpin and built what is now known as Breck's Mill. William Breck took over the mill in 1832. It was used first for cotton production and subsequently for woollen production. A 3½-story brick and stone structure, the mill has a tower, with a belfry, on its north end. Now owned by the Eleutherian Mills-Hagley Foundation, it is used mainly for conferences. (Eleutherian Mills-Hagley Foundation; HABS; NR.)

N E W C A S T L E C O U N T Y

Bulk Products (cont'd)

COOCH'S MILL
On Old Baltimore Pike,
1 mile east of 896
Newark

Newark East
18.436970.4387930

In 1792 William Cooch built a grist mill on this site. Destroyed by fire, it was rebuilt on the original foundation and subsequently became known as the Dayett Mill. All that now remains of the original mill is the foundation upon which a barn has since been constructed. The 1792-date stone is clearly visible on the eastern wall. (James R. and James B. Owen, A History of the Iron Hill Area.)

CURTIS PAPER MILL
Paper Mill Road
Newark

Newark East
18.435700.4393480

Paper-making was Newark's oldest industry and this site housed one of the State's earliest paper mills. Founded by the Meteer family before 1800, the mill was sold to the Curtis brothers in 1848. It was rebuilt then and again in 1887, when it was enlarged. The Curtis Paper Company specializes in the production of rag-content book and cover paper. The industry is housed in four buildings and it still employs two Fourdrinier paper machines, c.1880. Both were purchased from the Pusey and Jones Company in Wilmington. (Francis A. Cooch, Meteer's Mill; HAER.)

DAYETT MILL
904 Old Baltimore Pike
Newark

Newark East
18.437250.4387680

This is the site on which William Cooch built his grist mill in 1792. In 1884 John Dayett bought a mill on the same site. Gutted by fire in 1916 and in 1933, it was restored each time, and both times it continued to rely on Cooch's original dam for its water power. The current building was constructed on logs which displace its weight over a shifting foundation of sandy soil. Its brick walls date from the 19th century and they taper from approximately four feet in thickness at the base to 18 inches at the third floor. The owner is conscious of the historical significance of his property and has done much to preserve it. (Owen and Owen, A History of the Iron Hill Area.)

N E W C A S T L E C O U N T Y

Bulk Products (cont'd)

JOSEPH DEAN AND SON Newark East
Paper Mill Rd. near Cleveland Avenue 18.436100.4393340
on White Clay Creek
Newark

In 1845 Joseph Dean began operation of a woolen mill on this site. At first the firm concentrated on the spinning process, but it gradually moved into the production of jeans, blankets and military clothing. The mill has been enlarged since its mid-19th century beginnings and the main factory building has been extended from two stories to five. The original woolen mill, though damaged by fire at one time, still stands in good condition. Several other early buildings also survive. In the 20th century National Vulcanized Fiber bought the site and converted it into a paper and fiber mill. (Richard Edwards, ed., Industries of Delaware.)

ELEUTHERIAN MILLS Wilmington North
Hagley Museum 18.450900.4403200
Greenville, Wilmington

E.I. du Pont de Nemours & Company was founded by Eleuthere Irene du Pont in 1801 as a black powder manufactory. The company's early years (1804-1811) were uneven, due in part to a bad explosion on the grounds, but it was strengthened during the War of 1812 when du Pont became the principal manufacturer of powder for the U.S. Government. The production of black powder at this site continued until the early 20th century. The current complex includes the 1803-residence of E.I. du Pont, the company's first office building (1837), the original mills, the 1858-machine shop, and the 1814 Hagley Cotton Mills. The last three structures now house exhibits and the entire site is a museum open to the public. (Eleutherian Mills-Hagley Foundation.)

ENGLAND MILL Newark East
Red Mill Rd., on Muddy Run 18.439300.4393600
Newark

In the early 18th century John England settled in Newcastle County, hoping to find deposits of iron ore. In 1789 he built a grist mill on White Clay Creek. The timber structure survives in somewhat deteriorating condition. One wall is in danger of collapse. Various additions on the original structure have altered both the interior and the exterior. (Scharf, History of Delaware, Vol. II; WPA, Guide; HABS.)

N E W C A S T L E C O U N T Y

Bulk Products (cont'd)

GREENBANK MILL

Greenbank Mill Rd., near Rt. 41,
N. of Rt. 2
Marshallton

Newark East

18.446025.4398790

Built in 1790 as a grain mill, the Greenbank Mill is best known as the site where Oliver Evans first installed his automatic mill machinery, in the late 18th century. It was briefly, from 1811 to 1819, converted into a woolen mill. Recently the wood superstructure was destroyed by fire. It has been rebuilt to represent the 1790-mill, a 50 x 39-foot structure with 2½ stories and a small one-story office wing. (Carroll Purcell, Two Mills on Red Clay Creek in the 19th Century; John Stark and W. D. Teague, Flour for Man's Bread; Scharf, History of Delaware, Vol. II; HABS; NR.)

KENT BUILDING

South of Front Street,
at Orange Street Intersection
Wilmington

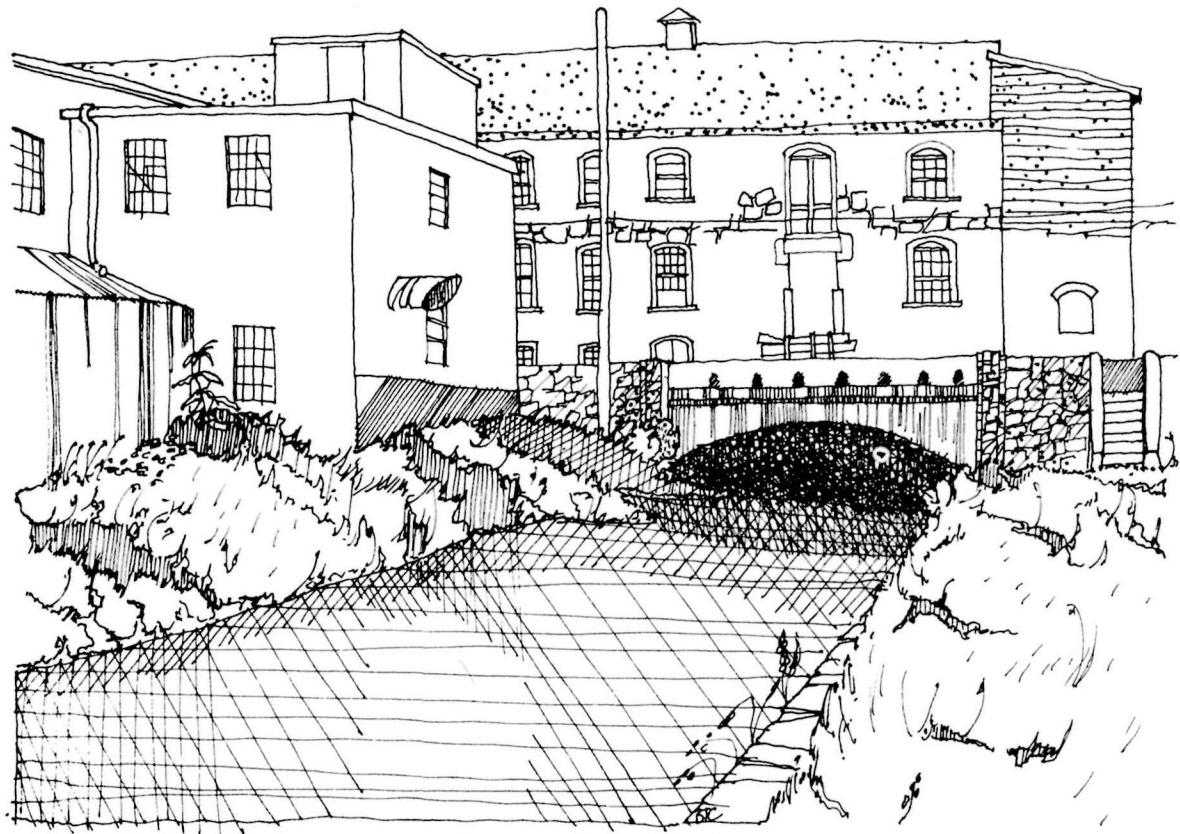
Wilmington South

18.452450.4398550

Built in 1885 as a slaughterhouse, the Kent Building has been converted to other uses. Currently it is used by the city of Wilmington for a "flea market." It is part of a large complex and is now owned by a lumber company. Some of the original buildings have been destroyed by fire and they are scheduled to be completely demolished.

N E W C A S T L E C O U N T Y

Bulk Products (cont'd)



ROCKLAND MILLS
Rockland

Wilmington North
18.450760.4405100

The Rockland Mill was a very early and active enterprise along the Brandywine. Today about eight of the stone buildings survive and their dates vary (from 1810 on). They are in poor condition and a recent fire has prompted the interest of the Eleutherian Mills-Hagley Foundation which is now making drawings of the mill. (HABS, NR.)

N E W C A S T L E C O U N T Y

Bulk Products (cont'd)

SPEAKMAN'S MILL
Mount Cuba Road
Mount Cuba

Kennett Square
18.445120.4404280

An 1816 assessment for Christiana Hundred refers to an "old" sawmill on this site. The existing 19th-century mill operated as a feed and grist mill for neighboring farms until it went out of business in 1938. Some walls and foundation are still standing. The mill race is also extant, but the site is mostly in ruins.

TATNALL AND LEA (Brandywine Mills)
Race and N. Market Streets
Wilmington

Wilmington North
18.453450.4399980

After the development of water power on the north side of the Brandywine, this site, better known as the Brandywine Mills, became an important flour center for the country. The mills began in the 1770s and they grew with their economic importance, servicing the ships that navigated the Brandywine. Several buildings stand and they are large structures made of heavy fieldstone and brick. They are in fair condition. (Scharf, History of Delaware; Eleutherian Mills-Hagley Foundation.)

WALKER'S MILL AND WALKER'S BANK
E. Bank of Brandywine and
Rising Sun Lane Bridge
Wilmington

Wilmington North
18.450425.4402240

As the water power on the Brandywine was harnessed, many small family-owned mills gave way to larger industrial complexes that employed many workers. Walker's Mill, a spinning mill built between 1813 and 1815, is an example of this development. The spinning process changed to weaving in the 1840s when Alexis I. DuPont introduced the new technology. Walker's Mill is now the exhibits lab for the Hagley Museum and Walker's Bank, originally workers' housing, is now used for storage space. Both buildings remain in good condition and they are relatively unchanged. (George Bennett, Early Architecture of Delaware; Henry Canby, The Brandywine; Eleutherian Mills-Hagley Foundation.)

N E W C A S T L E C O U N T Y

Bulk Products (cont'd)

YORKLYN SNUFF MILL (GARRETT SNUFF MILL)
Route 82
Yorklyn

Kennett Square
18.442300.4406550

In 1782 John Garrett established a water-powered snuff mill on Red Clay Creek. The firm grew in the 19th century and in 1907 Garrett merged with the American Snuff Company. As its fortunes grew, the complex also expanded and there are now eight buildings surviving from the old Garrett Mills. They were built at various times from 1846 to 1901 and they have been greatly altered, both inside and out. (WPA, Guide.)

Manufacturing

ALLIED KID COMPANY
East 5th Street,
at Church Street
Wilmington

Wilmington South
18.453500.4398580

The Allied Kid Company resulted from the consolidation of four earlier companies. The McNeely Company, begun in 1809 and a pioneer in chrome tanning, the Quaker City Morocco Company (founded in 1891), the Standard Kid Company, and the Standard Kid Manufacturing Company--both products of the early 20th century--merged their interests in 1929 to form the Allied Kid Company. In the 1940s it was the largest exporter of kid leather in the U.S. and it has continued to be a major producer of leather, especially for the shoe and bag trade. This site is a warehousing and distributing center for the company. (Leo B. Mulhearn, Allied Kid Company and the Leather Industry.)

E & A BETTS MACHINE COMPANY
Maryland Avenue, between
Beech & Foundry Streets
Wilmington

Wilmington South
18.451600.4398620

Nineteenth-century Wilmington was the center for a significant and thriving machine tool industry. In the early 1840s the firm of Betts, Pusey and Harlan worked on construction of the Bangor, the country's first iron sea-going propeller steamer. Shortly after their success, the partners

N E W C A S T L E C O U N T Y

Manufacturing (cont'd)

E & A BETTS MACHINE COMPANY (cont'd)

formed separate firms and the Betts Machine Company began production on this site in 1860. Located near rail transportation, it became one of the city's leading machine shops, turning out lathes, planers, drilling and slotting machines, turning and boring machines, standard gauges, etc. The Betts Company has gone out of business and the three or four brick buildings that survive now form part of a larger complex owned by the du Pont Company. The interiors have been greatly altered, and only their exteriors remain unchanged. (Scharf, History of Delaware; WPA, Guide.)

HARLAN AND HOLLINGSWORTH COMPANY
100 S. West Street
Wilmington

Wilmington South
18.452250.4398650

The Harlan and Hollingsworth Company was founded by Mahlon Betts, Samuel N. Pusey, Samuel Harlan and Elijah Hollingsworth, machinists. In the early 1840s Harlan accepted a job for the firm to repair a ship and this venture took the company into a new field: shipbuilding. It proved to be a successful move and Harlan and Hollingsworth became one of the most important shipbuilding plants in the country. Within 40 years the firm constructed 232 vessels and in 1887 the works covered 43 acres. This phase ended in 1926, but by that time the company was also a large producer of railroad cars, an operation that also dated from the mid-19th century. Currently the site is owned by Gates Engineering Company and they plan to raze the 11 brick structures that once belonged to the Harlan and Hollingsworth Company. (John C. Harkness, The Origin, Progress and Present Status of the Iron Artificers, Products and Capabilities of the Wilmington Metropolis (1888 Broadside); Lincoln, Wilmington, Delaware; Scharf, History of Delaware; WPA, Guide; HAER.)

A. L. HENDERER COMPANY
Beech Street and Maryland Avenue
Wilmington

Wilmington South
18.451540.4398580

This three-story brick building was built about 1872 for the manufacture of boiler tube expanders and stationary engines. There have been several additions to the original building but it has not been altered in the in-

N E W C A S T L E C O U N T Y

Manufacturing (cont'd)

A. L. HENDERER COMPANY (cont'd)

terior, except for the introduction of modern machinery. The shafting and pulley arrangements are still located in the ceiling of the second floor; the floor itself is original. Henderer is still manufacturing boiler tube expanders.

HILLES AND JONES
Church and 9th Streets
Wilmington

Wilmington South
18.453720.4398800

Started in the 1850s as a machine tool manufacturer, the Hilles and Jones Company began producing engines and boilers in 1863. In the 1870s the company changed its operations to specialize in the production of tools for locomotive builders, railroad shops, boiler makers and bridge building. It also found some success in the manufacture of radial drills and slotting machines. Two groups of five buildings each survive; they are large brick structures that have remained virtually unchanged.

JACKSON AND SHARP COMPANY
8th Street
Wilmington

Wilmington South
18.453950.4398720

Founded in 1863 by Job H. Jackson and Jacob F. Sharp as a passenger car and shipbuilding plant, the company enjoyed a world-wide reputation, especially for its construction of palatial private cars. It became the largest railroad car factory in the country and in the early 20th century Jackson and Sharp became the American Car and Foundry Company. Almost all of its buildings have been demolished and the two production shops that remain have been greatly altered. (Eleutherian Mills-Hagley Foundation; Lincoln, Wilmington, Delaware; WPA, Guide.)

LOBDELL CAR-WHEEL COMPANY
Christiana Avenue
Wilmington

Wilmington South
18.454500.4396350

In 1831 Jonathan Bonney founded a machine shop on this site. He was succeeded by George Lobdell who renamed the company in 1867. The Lobdell Car-Wheel Company received gold medals from both the Paris Exhibition of

N E W C A S T L E C O U N T Y

Manufacturing (cont'd)

LOBDELL CAR-WHEEL COMPANY (cont'd)

1866 and the Philadelphia Centennial for its superbly made products. Two large buildings with cast-iron columns survive the company, but they have been renovated for warehouse use. (Pennsylvania Historical Society; Lincoln, Wilmington, Delaware; WPA, Guide; HAER.)

PULLMAN PALACE CAR COMPANY
1204 East 12th Street
Wilmington

Wilmington South
18.454300.4398900

Started as a private enterprise in 1871, the Bowers & Dure Company made railroad and street cars. In 1886 Henry F. Dure sold the company's shops to the Pullman Company which used them mainly to repair cars. Six large buildings survive. Their interiors have been gutted but the exteriors remain in good condition.

PUSEY AND JONES COMPANY
Railroad Avenue,
on the Christiana River
Wilmington

Wilmington South
18.453000.4398300

The Pusey & Jones Company, founded as a machine shop in 1848 by Joshua Pusey and John Jones, accepted its first ship contract in 1853. By the 1880s it had become one of the four largest iron shipbuilders in the country. At the same time Pusey & Jones became one of the world's largest producers of paper-making machinery. In addition, the company also manufactured a number of diverse products which included both a 14-ton "gold mill" for use in the California mines and the 23-ton cable anchors for the Brooklyn Bridge. The site is now owned by several owners and they have gutted most of the 18 or 20 remaining buildings. (Lincoln, Wilmington, Delaware; WPA, Guide.)

J.E. RHOADS COMPANY
2100 W. 11th Street
Wilmington

Wilmington North
18.451060.4400540

Established in 1702, in Delaware County, Pennsylvania, the J. E. Rhoads Company began as a tanyard. In the 19th century the company processed finished leather goods from raw hides. Today it only manufactures leather articles on special order, since its main product is leather belting.

N E W C A S T L E C O U N T Y

Manufacturing (cont'd)

J. E. RHOADS COMPANY (cont'd)

reinforced by nylon. Many early buildings are still standing and a quick tour through them reveals many features of its 19th-century tanning operations. (Eleutherian Mills-Hagley Foundation.)

THE TRUMP BROTHERS MACHINE COMPANY
Beech and Anchorage Streets
Wilmington

Wilmington South
18.451520.4398450

In 1872 or 1873 the Trump brothers organized a machine shop for the manufacture of small machinery and nuts and bolts. The existing building is shaped like an "E." A newer section was built between 1872 and 1928, but the older part, dated 1872-1873, appears to have been the original factory building and it remains in good condition.

Special Structures

FORT DELAWARE
Pea Patch Island
on Delaware River
NW of Delaware City

Delaware City
18.451240.4382100

Fort Delaware is a five-sided structure with solid granite block walls, seven feet to 30 feet thick. There are three tiers for guns, two consisting of rows of masonry casements. A 30-foot moat surrounds the fortification. As early as 1817 the U.S. Army had begun construction of a fort here, but by 1831, when a fire severely damaged it, the structure was in poor condition. On 18 April 1833 the army authorized the reconstruction of a fort on the same site. Both New Jersey and Delaware claimed ownership of the Island, and building was delayed until 1848. Because of the peculiar properties of the mud in the area, the army had a great deal of trouble driving the timber piles. Most of the earlier attempts at driving had failed in disastrous proportions. In 1859 construction of Fort Delaware was suspended, except for those features

N E W C A S T L E C O U N T Y

Special Structures (cont'd)

FORT DELAWARE (cont'd)

planned to hold armaments. During the War Between the States, Fort Delaware served as a prisoner detention camp for the Northern States and it never fired a hostile shot during the entire war. Except for continuous storm and dike damage, the fort has suffered no deterioration. (Frank Snyder and Brian Guss, The District: A History of the Philadelphia District U.S. Army Corps of Engineers, 1866-1971; HABS; NR.)

LIMEKILNS	Newark East
Pike Creek Rd.,	18.438100.4399280
SE of Intersection with	18.438800.4399060
Paper Mill Rd.	
Newark	

There are six limekilns in this area and little is known about them except that they seem to date from the early 19th century. They are well-preserved stone structures with arches that vary in size and construction from kiln to kiln. (HABS; HAER.)

Transportation

B & O RAILROAD STATION	Wilmington South
Front Street	18.452750.4398500
Wilmington	

Built as a freight station in 1855, this building still functions as a freight station and records storage building. It is not open to visitors and its history is not well known to area residents.

CHESAPEAKE AND DELAWARE CANAL	Elkton
15 mi. S of Wilmington,	18.430625.4375400
bet. Delaware and Chesapeake Bays	Delaware City
	18.449530.4380950

The Chesapeake and Delaware Canal crosses Delaware about 15 miles south of Wilmington uniting the Delaware and Chesapeake Bays. A similar waterway had been proposed as early as 1654, by the Swedish Governor of Delaware. It was not seriously attempted until 1802, and it was opened for use in 1829, providing an all-water route from Philadelphia to Baltimore.

N E W C A S T L E C O U N T Y

Transportation (cont'd)

CHESAPEAKE AND DELAWARE CANAL (cont'd)

In 1919 the canal was cut down to sea level, eliminating three of four locks. Between 1935 and 1938 the canal was deepened. The construction of the Canal has generated much study and there are several early structures still remaining. A feeder canal, begun in 1804 and designed by Benjamin Latrobe, runs from Elk Mills, Maryland, to Glasgow, Delaware. The feeder was to have been longer but it was never completed. It remains in good condition, however, and is clearly visible along much of its 5½-mile route. Also in the Glasgow vicinity, although just across the border in Chesapeake City, Maryland, there is an early pumping station. Built in 1837, to provide water to the canal, it was rebuilt in 1851 when much of the surviving equipment was installed, including two Merrick and Sons beam engines. At the other end of the canal, in Delaware City, Delaware, are two additional structures that pre-date the sea-level canal. One is a diving bell, made in Philadelphia in 1839. An iron chamber in which repairmen descended to work on the lock gates, it was retired in 1927, when the sea level canal was opened. It now rests in the Delaware City Community Park. In addition, the Eastern lock of the Canal, the only one surviving, still stands in Delaware City. Originally 100 feet by 22 feet, it was enlarged to 220 feet by 24 feet. It is deteriorating and several feet of mud now fill the lock. (Ralph Gray, The National Waterway; Snyder and Guss, The District.)

ICE BREAKERS
Harbor on Delaware River
Newcastle

Wilmington South
18.451760.4389580

In 1803 ice breakers were built on the Delaware River in Newcastle. The breakers were periodically replaced and repaired. There are now four breakers at Newcastle, ranging in date from 1854 to 1875. Low, hexagonal structures, they are made of stone with wrought iron ties. (Snyder and Guss, The District.)

MONTCHANIN RAILROAD STATION
Route 100
Montchanin

Wilmington North
18.449580.4404270

The Montchanin station was built in 1875 by the Wilmington and Northern Railroad. It functioned both as a passenger station and a freight station, but its greatest importance was providing service to the nearby industrial sites, including the Eleutherian Mills and Rockland Mills. It is in good condition and is now used as a post office.

N E W C A S T L E C O U N T Y

Transportation (cont'd)

NEWARK RAILROAD STATION Newark West
below South College Ave viaduct 18.435400.4391220
Newark

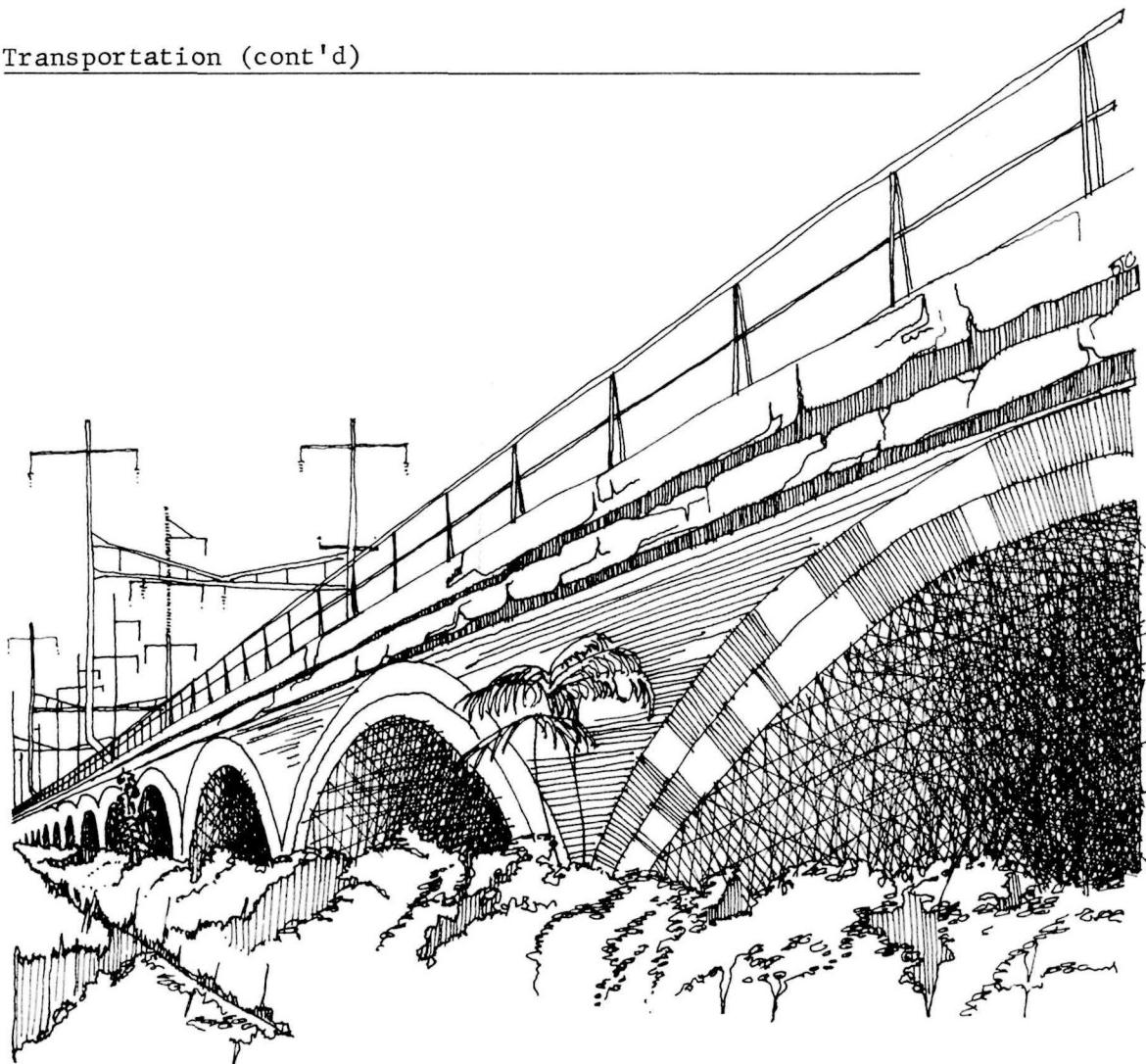
A handsome two-story brick structure, built in 1877, the Newark Station is still an active passenger station.

NEWCASTLE AND FRENCHTOWN RAILROAD Elkton
Newcastle, Delaware to 18.427680.4380820
Frenchtown, Maryland St. Georges
18.440940.4384840

In 1829 the New Castle & Frenchtown Turnpike Company secured permission from the legislatures of both Delaware and Maryland to build a railroad from New Castle to Frenchtown on the Elk River, a tributary of the Chesapeake Bay. The railroad was open from New Castle to Ross's Point (now Hares Corner) on 4 July 1831, with horse-drawn carriages. The entire line (16.2 miles) was opened 28 February 1832. The change to locomotives came 10 September 1832. The travel arrangement was steamboat from Philadelphia to New Castle, train to Frenchtown, and another steamboat to Baltimore. Once a direct rail line from Philadelphia to Baltimore (the present Penn Central line) was opened in December 1837, business steadily declined. The Philadelphia, Wilmington and Baltimore Railroad operated it from 1843 on, eventually absorbing it in 1852. The Delaware Railroad used it from New Castle to Delaware Jct. (now Red Lion) starting in 1856 and the Penn Central still operates that portion. The balance from Delaware Jct. to Frenchtown was abandoned in 1856. This may have been the first railroad abandonment in the U.S. Delaware has erected markers where the old line crosses present major highways. (Hugh Gibb, The Delaware Railroad, MA thesis at the University of Delaware; NR.)

N E W C A S T L E C O U N T Y

Transportation (cont'd)



PENNSYLVANIA RAILROAD VIADUCT
Beech St.,
under I-95 overpass
Wilmington

Wilmington South
18.451620.4398300

This brick and stone right-of-way carries the Penn Central line through a large section of the Wilmington metropolitan area. It is a viaduct, built between 1902 and 1905, composed of a series of brick arches, some of them skewed. The arches have a span of 41 feet and a rise of 8 feet. Originally they were to have been all stone but this plan was abandoned because of the difficulty of obtaining stone fast enough. The viaduct crosses the Brandywine with a fishbelly plate-girder drawbridge. It is still in use and in good condition. (Railway Age, 20 March 1903, 8 April 1904, 31 March 1905, 3 November 1905; Lincoln, Wilmington, Delaware.)

N E W C A S T L E C O U N T Y

Transportation (cont'd)

READING ROUNDHOUSE
Beech Street,
under I-95 underpass
Wilmington

Wilmington South
18.451550.4398350

Originally built for the Wilmington and Northern Railroad, in 1870, the Reading Roundhouse is now only partially used. Half of the structure has been condemned and the other half is used occasionally and only for light work.

WILMINGTON RAILROAD STATION
Front and King Streets
Wilmington

Wilmington South
18.452750.4398500

Designed by the architectural firm of Furness, Evans & Co., of Philadelphia, the Wilmington Station was build in 1905. It is a massive building that is situated on an old river bed. The entire structure rests on a series of brick arches, nearly four feet below the surface of the ground. The building itself is a steel frame with brick walls and stone and terra cotta trimmings. The first floor, approximately 160-feet square, is interrupted on the track level by four main tracks, a small line of waiting rooms on the north side and a larger set of waiting rooms on the south side. The old railroad hotel building is adjacent. (Railway Age, 3 November 1905.)

Utilities

BRANDYWINE RACE
Along Brandywine River
from Broom to Market Streets
Wilmington

Wilmington North
18.453200.4400000

Part of the city's water supply system, the Brandywine race was built in 1900. The dam is approximately 4800 feet upstream from the main pumping station and it continues to supply Wilmington with water from the Brandywine River. (31st Annual Report, Wilmington Water Department.)

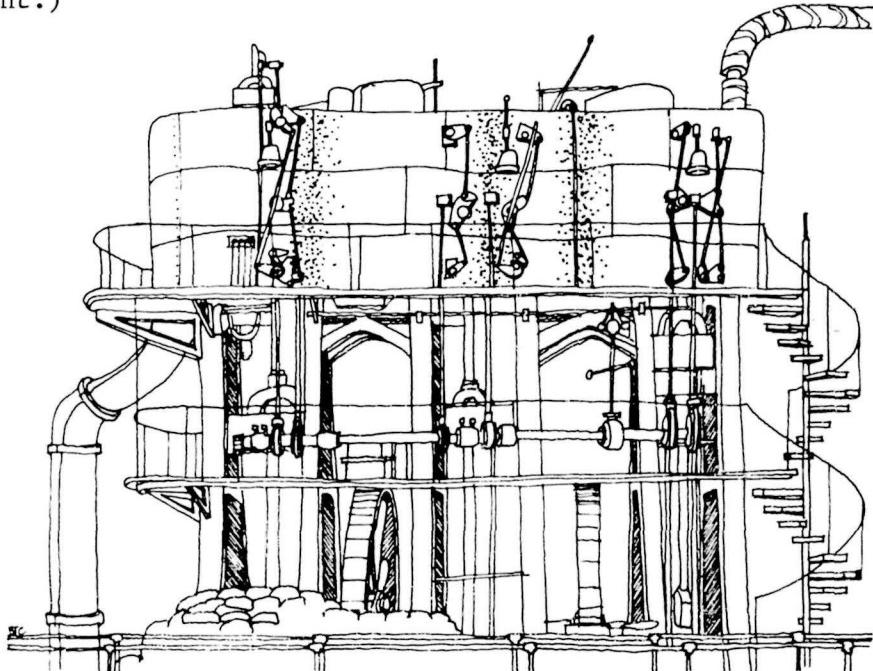
N E W C A S T L E C O U N T Y

Utilities (cont'd)

ROCKFORD WATER TOWER
Wilmington

Wilmington North
18.450760.4401880

In the early 20th century the city of Wilmington decided to modernize its water supply system. The Rockford Water Tower, built in 1901, was a part of the city's plan. It is built of fieldstone cemented together to enclose a steel cylinder which contains the storage water. This type of tower is typical of similar structures of the same period, although it appears to be the only one of its kind in Delaware. (Wilmington Water Department.)



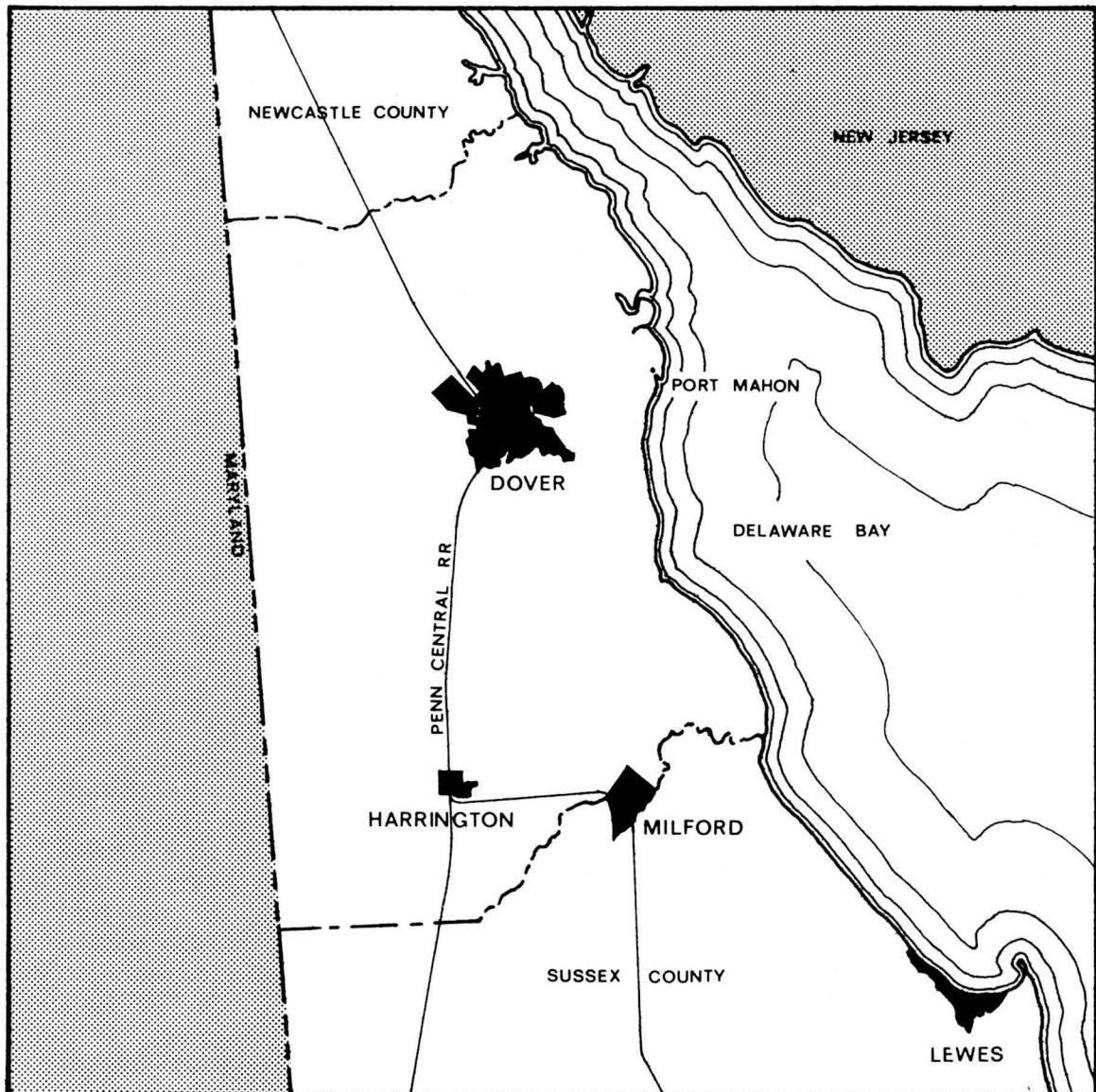
HOLLY STEAM PUMPING ENGINE

WILMINGTON PUMPING STATION
16th and Market Streets
Wilmington

Wilmington South
18.453450.4399880

In 1902, as part of the system of contracts awarded for the rejuvenation of the Wilmington water system, the Water Department installed two Holly vertical, three-cylinder triple-expansion steam pumping engines. One has been removed but the second, still in place and in excellent condition, is housed in the original pump house. (Wilmington Water Department.)

KENT COUNTY



K E N T C O U N T Y

Bulk Products

J.H. WILKERSON & SON BRICK WORKS
Gravel road off Road 409
Milford vicinity

Milford
18.464080.4307680

From 1900 to 1960 this factory produced bricks from native clay. When the clay ran out, the company closed production and now only distributes bricks. No effort has been made to preserve the condition of either equipment or structure, but the brick-making machinery is still in its original location, covered by a crude shed. Likewise, the large kiln, approximately 25 x 40 feet, is still partially intact, with some walls, a removable roof, and some bricks stacked as they were for the last firing. (HAER.)

BRICKYARD
On White Oak Road, East of Rt. 13
Dover

Dover
18.456720.4336260

Situated in a heavily wooded area, the brickyard is not visible from the road. It was built c.1900 and last operated in the 1930s. It has since fallen into a ruined condition; some brick kiln walls and a few wooden roof supports still stand, but the site is prey to local residents who find it a ready source of free bricks.

HARRINGTON WAGON SHOP AND MILLING COMPANY
Vernon Road
Harrington

Harrington
18.449060.4307690

In 1820 this brick building was a wagon shop. It was converted, around 1850, to a grist mill and it now services a seed-cleaning operation. All equipment from the wagon shop and most from the grist mill is gone. While some of the original structure remains, it has been greatly altered and is currently in a declining condition.

RICHARDSON AND ROBBINS COMPANY
King's Highway near Budd Street
Dover

Dover
18.454750.4334450

Originally a group of red brick factory buildings producing nationally known brands of boned chicken, canned fruit and the like, the cannery is now a division of the Underwood Company. It was founded in 1855--

K E N T C O U N T Y

Bulk Products (cont'd)

RICHARDSON AND ROBBINS COMPANY (cont'd)

after Alden B. Richardson spent eight years experimenting on a cook-stove--and in 1856 it produced 600 cans of fruit. Richardson remained in charge of the canning operation; Robbins took over the job of field purchasing. In the original operations, each can was packed, weighed and labeled by hand; and the cans themselves were hand-made. During the 1920s much of this hand-labor was replaced by machine and, while the rooms where this hand-labor took place are no longer used, their physical arrangement has not been altered. In addition, the cannery continues to use a belt-driven machine shop with tools that date from the 1880s and earlier. (WPA, Guide; Historical and Biographical Encyclopedia of Delaware; HAER.)

JOHN SHELDRAKE CANNING COMPANY
North Street and Weiner Avenue
Harrington

Harrington
18.449900.4309140

This wood-framed structure was used as a cannery from 1870 until 1956, when a fire destroyed another part of the factory complex. It has since been covered with tin siding and converted into a warehouse.

Manufacturing

HARRINGTON JOURNAL PRINTING OFFICE
1 Commerce Street
Harrington

Harrington
18.449860.4308280

Located in a brick building that originally served as a First National Bank, the Harrington Journal, a local newspaper, employs two machines of interest to students of late 19th-century technology. One is a Miehle letter press, constructed by the Miehle Company, last patent date 28 March 1899; the other is a Golding cutter, c.1900.

K E N T C O U N T Y

Transportation

CLAYTON RAILROAD STATION
Rt. 300
Clayton

Clayton
18.445380.4349130

In 1885 the Delaware Railroad Company decided to locate its main office in Clayton, Delaware. This was completed in 1890 and the brick structure also functioned as a passenger station. It now operates as a Penn Central freight station, with a much-altered interior, though the exterior remains intact.

FELTON RAILROAD STATION
Railroad Avenue and Sewell Street
Felton

Wyoming
18.450080.4317760

Built around 1880 as a passenger station, this brick station is no longer in use and has fallen victim to vandalism.

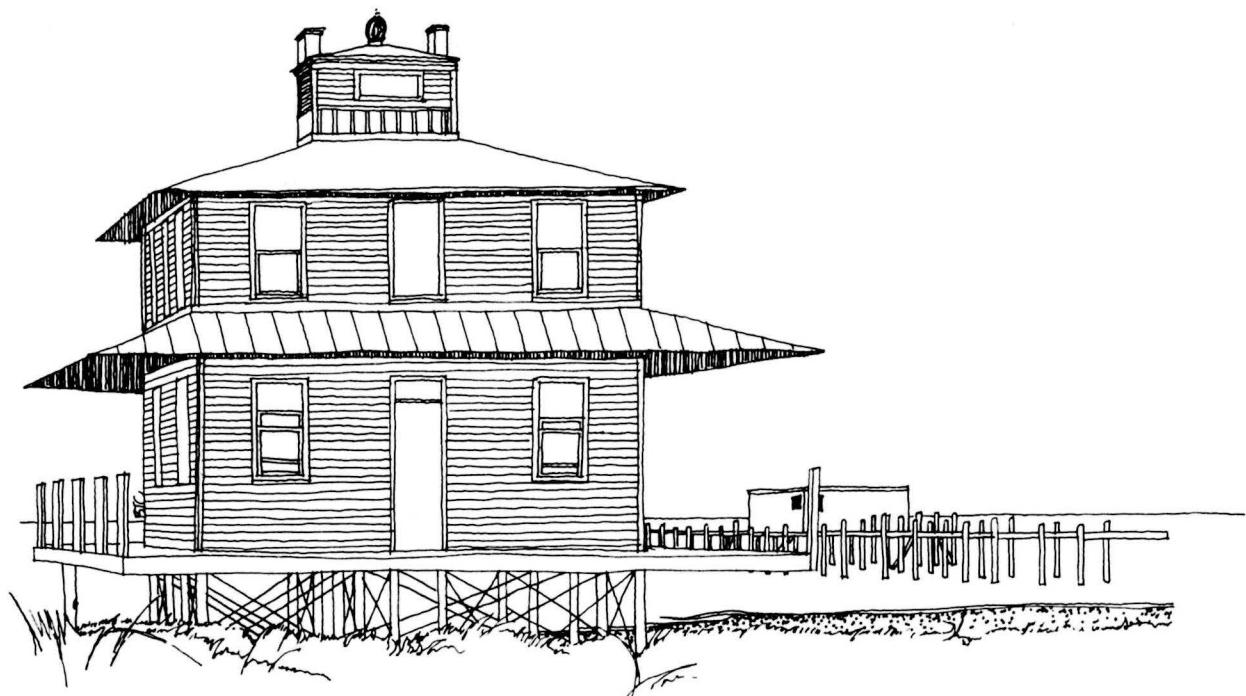
HARRINGTON RAILROAD STATION
Delaware Avenue
Harrington

Harrington
18.449960.4308290

Built of brick around 1875, this station now serves as an operations office. It also contains records of railroad structures, especially bridges and tracks, below the Chesapeake and Delaware Canal in Delaware.

K E N T C O U N T Y

Transportation (cont'd)

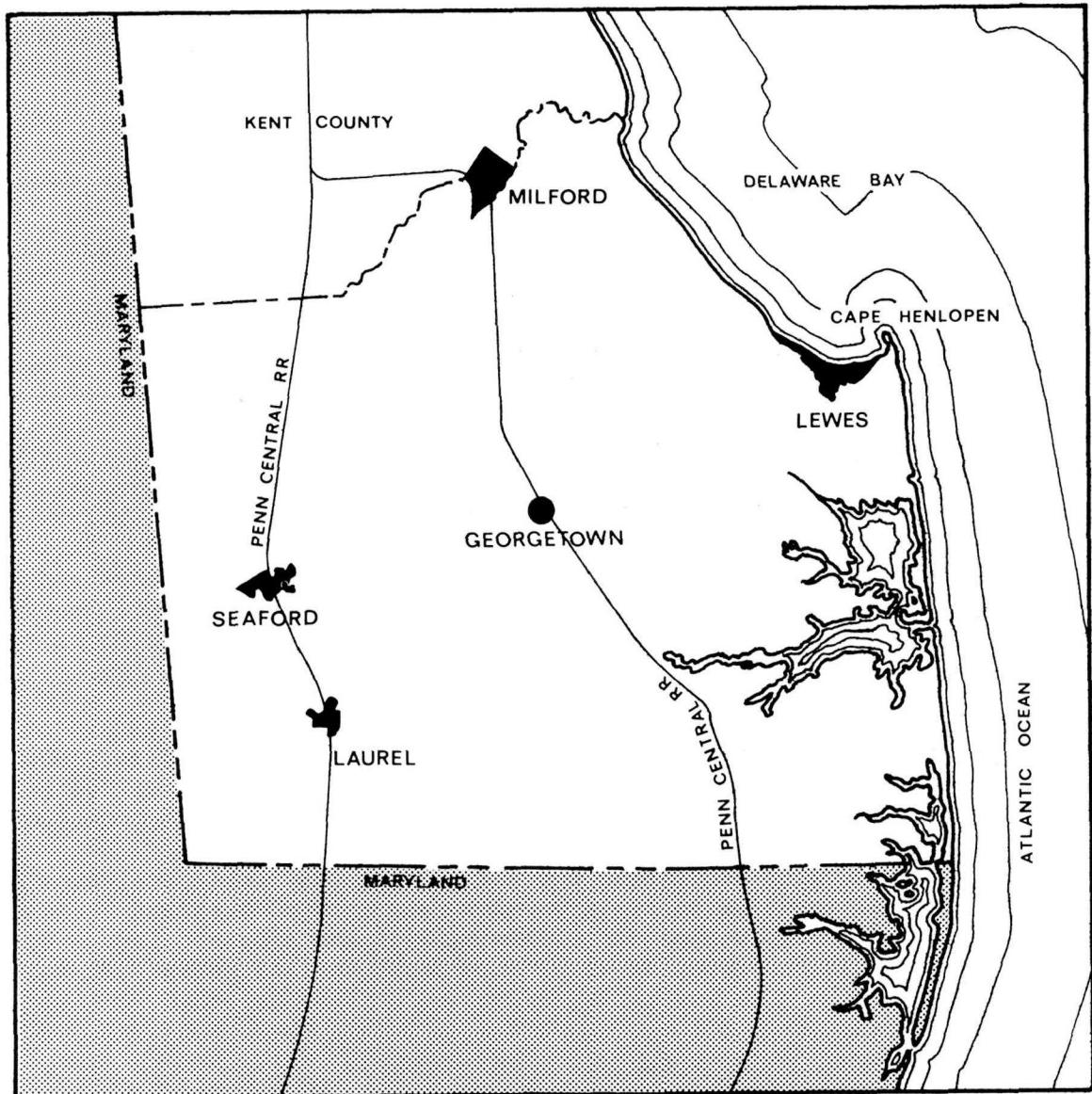


MAHON RIVER LIGHTHOUSE
On the Delaware Bay,
at mouth of Mahon River
Port Mahon

Little Creek
18.465340.4337150

Built around 1879, the Mahon River Lighthouse is a timber structure supported on iron screw pilings, a technique that was used extensively in the Delaware Bay. It is currently abandoned.

SUSSEX COUNTY



S U S S E X C O U N T Y

Bridges, Trusses, and Aqueducts

CENTRAL AVENUE LIFT BRIDGE
Central Ave (US 13A)
over Broad Creek
Laurel

Laurel
18.450160.4267760

Built in 1923 this rolling lift bridge was the product of the Scherzer Rolling Bridge Company of Chicago.

MISPILLION RIVER LIFT BRIDGE
East of Milford
Milford

Milford
18.463760.4307440

The Misplillion River Bridge is a rolling lift bridge c.1925.

POPLAR STREET BRIDGE
Poplar Street, over Broad Creek
Laurel

Laurel
18.450070.426770

A hand-operated turntable bridge, the Poplar Street Bridge was built around 1891 by a private firm, the Marvel Package Company. It was later given to the county and then to the State.

SEAFORD RAILROAD BRIDGE
Over Nanticoke River,
end of New Street
Seaford

Seaford East
18.446550.4276490

A movable railroad bridge, the Seaford Bridge was built in 1890 by the Pencoyd Bridge & Construction Company of Pencoyd, Pennsylvania. Though its manual controls are still operable, it is now controlled electrically from the nearby railroad station. It is in good condition.

S U S S E X C O U N T Y

Bulk Products

ABBOTT'S MILL Milford
On Rd. 620, $\frac{1}{2}$ mile North 18.458670.4304020
of Jct. of 36 and 113
Milford

Abbott's Mill, a timber structure constructed in the 1860s and protected by tin siding, has remained practically unaltered. The main building is $2\frac{1}{2}$ stories high with wings on three sides. A mid-century grist mill, the site still contains much early equipment. (Scharf, History of Delaware, Vol. II.)

CHIPMAN'S MILL Laurel
On Rd 465, East of Rt. 13 18.452970.4268060
at Chipman's Pond
Laurel

Built on the site of an earlier mill, the current Chipman Mill was begun in 1884 by Joseph Chipman and others. Two turbines, gearing and shafts, stone, cranes and pulleys can still be found in the timber structure, though it closed in 1950. The current owner wishes to have the mill restored by a reputable agency, in return for which he will donate the mill. Unless an interested party can be found, the owner will soon be forced to destroy it.

DODD'S MILL Harbison
Morris Pond, 4 miles 18.472370.4276560
north of Millsboro

Dodd's Mill was built on the site of Poole's Mill, after the earlier structure was destroyed in a fire around 1870. It was enlarged in 1924 and has been greatly altered since it ceased operation in 1944. Part of the mill now serves as summer living quarters.

S U S S E X C O U N T Y

Bulk Products (cont'd)

DOE BRIDGE MILL Millsboro
Off Rt. 30, 1 mile N. of Jct. with Rt. 24 18.474010.4273150
Millsboro

One of the earliest grist mills in the town of Millsboro, the Doe Bridge Mill was built around 1800. The brick and stone mill is in complete ruins and only some foundation walls and broken mill stones remain.

HEARN AND RAWLINS MILL Seaford East
Alternate US 13 at Hearn's Pond 18.448320.4281090
Seaford vicinity

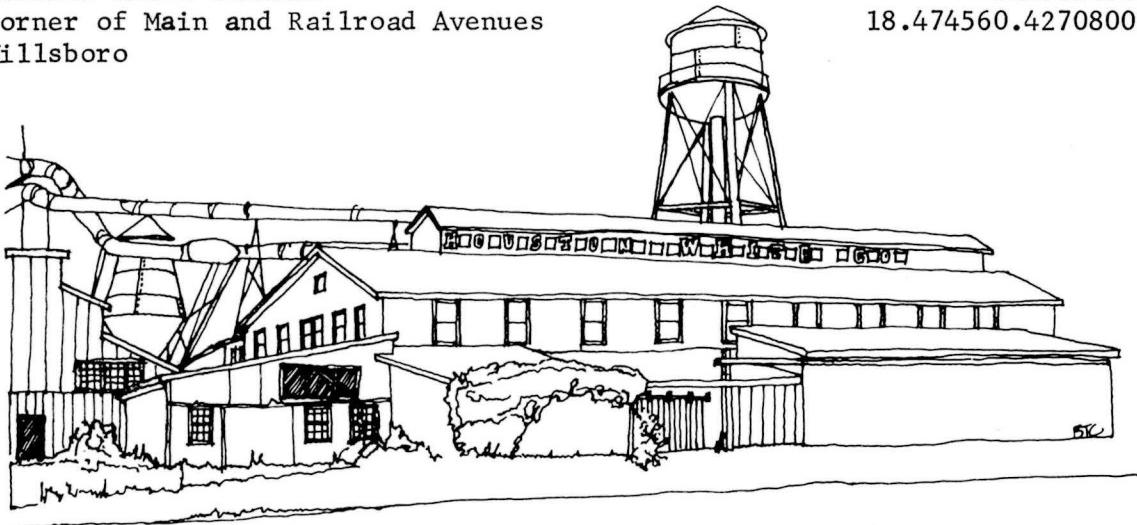
In 1885 Marcellus Hearn built a mill on the site of an earlier mill that had burned in 1879. In 1916 the enterprise he began was renamed the Hearn & Rawlins Mill. The property consists of a large timber mill and two warehouses. Two metal overshot wheels, installed in 1912, are still in use except during low water conditions, when an electric motor takes over.

S U S S E X C O U N T Y

Bulk Products (cont'd)

HOUSTON-WHITE COMPANY
Corner of Main and Railroad Avenues
Millsboro

Millsboro
18.474560.4270800



Founded about 1905, by Henry Houston and William J.P. White, the Houston-White Company became one of Delaware's largest manufacturers of baskets and other wooden containers for fruit and vegetables. Great gum logs were "cooked" in tanks and their veneer was peeled on heavy lathes. Although the factory building is no longer used, much of the equipment--including a single-cylinder Corliss engine--remains in place and in good condition. (WPA, Guide; HAER.)

MILFORD ICE AND COAL (DOWNING FUEL SERVICE)
Maple and Church Streets
Milford

Milford
18.462560.4306860

Since its beginning in the late 19th century, the Milford Ice and Coal plant has changed owners several times. The original ammonia system remains in place, however, and the site is an excellent example of a small-scale ice-making plant from that period. (HAER.)

S U S S E X C O U N T Y

Bulk Products (cont'd)

WARREN'S MILL
On State Street
at Bett's Pond
Millsboro

Millsboro
18.473510.4271780

Warren's Mill was built on the site of an earlier mill that was destroyed by fire in 1910. Other than the turbine, there is little equipment left, but the mill's interior is still in good condition.

Manufacturing Products

PASTE BRUSH FACTORY
224 Front Street
Lewes

Lewes
18.487800.4291620

The oldest tin-handled brush factory in the U.S., this factory was first established in Philadelphia in 1887, by J. William Hocker. In 1899 it was moved to a small frame building in Lewes. It is in excellent condition and remains a good example of small machining shop production. (HAER)

PEARL BUTTON SHOPS
Several locations in Milton Area
Milton

Milton
Various Sites

It is claimed that 90% of the world's output of pearl buttons in the 20th century was produced in a 50-mile radius of Milton. The fact is not easy to substantiate, but the claim is indicative of the importance that this industry had for Milton. George A. Lippincott, head of the Pearl Products Company of Philadelphia, moved to Milton near the end of World War I and began the manufacture of pearl buttons. His shop at one time employed about 168 cutters. Other factories also opened in the area and the laborers of Milton soon embraced this industry. Small garage shops were located in the town and nearby countryside. Apparently no finishing was done in Milton, but some shell cutters prepared the product for the skilled laborers who worked at the button lathes. Today there are a few cutters still working at an industry made obsolete by plastic buttons.

S U S S E X C O U N T Y

Manufacturing Products (cont'd)

RICHARDS AND TYNDALL PEARL BUTTON MANUFACTURING COMPANY

115 Chestnut Street

Milton

Milton

18.472880.4291310

Founded in 1938, the factory closed in 1972. Since then the main cutting room of this factory has only been slightly changed and it looks as if the button cutters had just walked off their jobs; gloves, files and personal effects are still in place beside individual lathes. The factory employed 42 cutters, one shell grinder, and six sorting girls. Its working arrangement is still intact and the frame building is in good condition. It provides a good opportunity to study a very important local industry.

JOHN MULHOLLAND COMPANY

Marshall and Mispillion Streets

Milford

Milford

18.463700.4307000

The Mulholland Company is a complex of about 15 timber-frame buildings that produced wooden spoons, ice cream sticks, tongue blades, stirrers and spools from 1910 to 1950. When the company closed, most of the machinery was shipped to Korea and Japan, to be used in the same capacity. The company is especially interesting since it appears to be one of the earliest to use cellophane as a packaging material for its products. The inventor of a small cellophane wrapping machine still lives in the area.

VINYARD SHIPYARD

8 Columbia Street

Milford

Milford

18.463460.4307160

Nineteenth-century Milford was noted as a shipping and shipbuilding town. By the 1850s a dozen schooners and sloops of the port took away annually more than 300,000 bushels of grain, in addition to tanbark, staves, lumber, cordwood and other products. The Vinyard Shipyard was situated in the middle of this activity. Today renamed "Spirit Marine," the firm now builds small craft. Its machine shop is equipped with early 20th-century tools for the most part and the buildings are in good condition. (WPA, Guide.)

S U S S E X C O U N T Y

Special Structures

FIVE-MILE STONE
DE Rt. 14 at
Fenwick Island Lighthouse
Fenwick Island

Assawoman Bay
18.495160.4255670

On 4 March 1681 William Penn received his patent for Pennsylvania from Charles II; on 24 August 1682 he was given the leases and deeds for the three existing Delaware counties as well. This patent, a charter from the Crown, gave him wide powers of government as well as full proprietary rights. As early as Penn's arrival, the "three lower counties" of his colony became a matter of dispute between him and the Calvert family, descendants of Lord Baltimore. Finally, in 1750, a survey was undertaken to establish the southern boundary between Delaware and Maryland. In 1763-1767 Mason and Dixon surveyed the southern and western limits and in 1769 King George III approved the division of the "three lower counties" from Pennsylvania. The Five-Mile Stone in Fenwick Island is one of the few remaining from the original 1750 survey. (WPA, Guide.)

MASON-DIXON STONE
On Rt. 54, extreme SW
corner of Delaware
Delmar vicinity

Hebron
18.439460.4256880

The Delaware-Maryland Boundary was surveyed in 1750-1751. It ran from the Atlantic Ocean 35 miles west to the center of the Peninsula. In the 1760s Charles Mason and Jermiah Dixon continued the line westward, and in 1768 they installed a double crownstone--bearing both the Penn and the Calvert Coats of Arms. The two stones, now protected by a shelter erected by the Delaware State Society of the DAR, mark the middle point of the peninsula as well as the southern end of the Mason-Dixon boundary. (WPA, Guide.)

Transportation

BRIDGEVILLE RAILROAD STATION
SE of Market St.
Bridgeville

Seaford East
18.447290.4288100

A brick passenger station, built in 1871, the Bridgeville station remains in good condition, though its interior has been altered. The building was converted into a freezer house for the Rapa Scrapple Company and its windows and doorways have been bricked up.

S U S S E X C O U N T Y

Transportation (cont'd)

DELAWARE BREAKWATER AND HARBOR OF REFUGE

Delaware Bay

Lewes

Cape Henlopen

18.490500.4295380

18.491500.4297000

The first structure of its kind in the Western Hemisphere, the Delaware Breakwater and Harbor of Refuge was begun in 1818 by the town of Lewes, in an attempt to avoid the costly and frequent shipwrecks that took place in the harbor. Ten years later the U.S. Army Corps of Engineers took up the effort. The first breakwater (1828-1835) was designed by William Strickland and was built of Brandywine granite. The later breakwater forms the outer harbor. Utilizing rubble mound construction, stone was dumped on the bottom of the Bay along a base averaging 160 feet in width. The breakwater's length at base was 2,586 feet; from 1828 to 1840 835,000 tons of stone were dumped. A tabular statement of vessels for the period from 1840 to 1849 shows the harbor serviced 25 ships daily. Later in the century the harbor was expanded to meet the requirements of larger and deeper hulls. In 1896 a new breakwater was authorized as a "National Harbor of Refuge," in the Delaware Bay. This was completed in December 1901; its total length at low water line was 8,040 feet. For the later addition steam derricks were used to place very large stone, thus facilitating a precisely constructed superstructure with a steeper slope to seaward than earlier methods had allowed. The Breakwater remains in excellent condition. (Snyder and Guss, The District; Virginia Cullen, History of Lewes, Delaware and Vicinity; WPA, Guide.)

DELMAR RAILROAD STATION

East Grove and Central Avenue
Delmar

Delmar

18.449560.4256480

This structure, built around 1910, still functions as a railroad freight station, though its interior has been remodeled.

S U S S E X C O U N T Y

Transportation (cont'd)



FENWICK ISLAND LIGHTHOUSE
West of Rt. 14, on
DE/MD border
Fenwick Island

Assawoman Bay
18.495160.4255690

About one-half mile from the ocean, the Fenwick Island lighthouse was erected in 1857. An 80-foot tower, it has a prism lamp that is visible for 15 miles at sea. (William H. Bayliff, Boundary Monuments on the MD-PA and the MD-DE Boundaries.)

S U S S E X C O U N T Y

Transportation (cont'd)

GEORGETOWN ENGINE HOUSE
NW Railroad Avenue
Georgetown

Georgetown
18.466340.4280680

Once an engine repair shop for both the Pennsylvania Railroad and the Philadelphia, Wilmington and Baltimore Railroad, this late-19th-century structure is now used by the Georgetown Lumber Company. It is a storage facility and the inside is not accessible to visitors. A brick rectangular structure with large doorways on either end, the building is in fair condition.

GREENWOOD RAILROAD STATION
Railroad Avenue and Mill Street
Greenwood

Greenwood
18.448540.4295270

A clapboard structure with cut shingles on the eaves, this passenger station, built c.1870, has an overhang roof with large brackets. It is no longer used and the inside has been vandalized. The building itself is in a deteriorated condition.

HIGHBALL SIGNAL
City park, near Penn Central Railroad
Delmar

Delmar
18.449560.4256440

The Delmar highball signal is among the last survivors of a presemaphore type of traffic control, probably invented during the railroad expansion period of the 1840s. The white-painted metal sphere is mounted on a wooden post, near the tracks. Manipulated by a chain hoist, it can be raised or lowered, to indicate a clear or an encumbered track ahead. When the engineer had a "highball," he kept the train moving, knowing that he had clear right-of-way. This kind of signal has been supplanted by electronic signals; and the Delmar highball is now part of a small public park where it is maintained as a feature exhibit. (NR.)

THE IRON PIER
about $\frac{1}{2}$ mile from
Cape Henlopen State Park entrance
Lewes

Cape Henlopen
18.490840.4292800

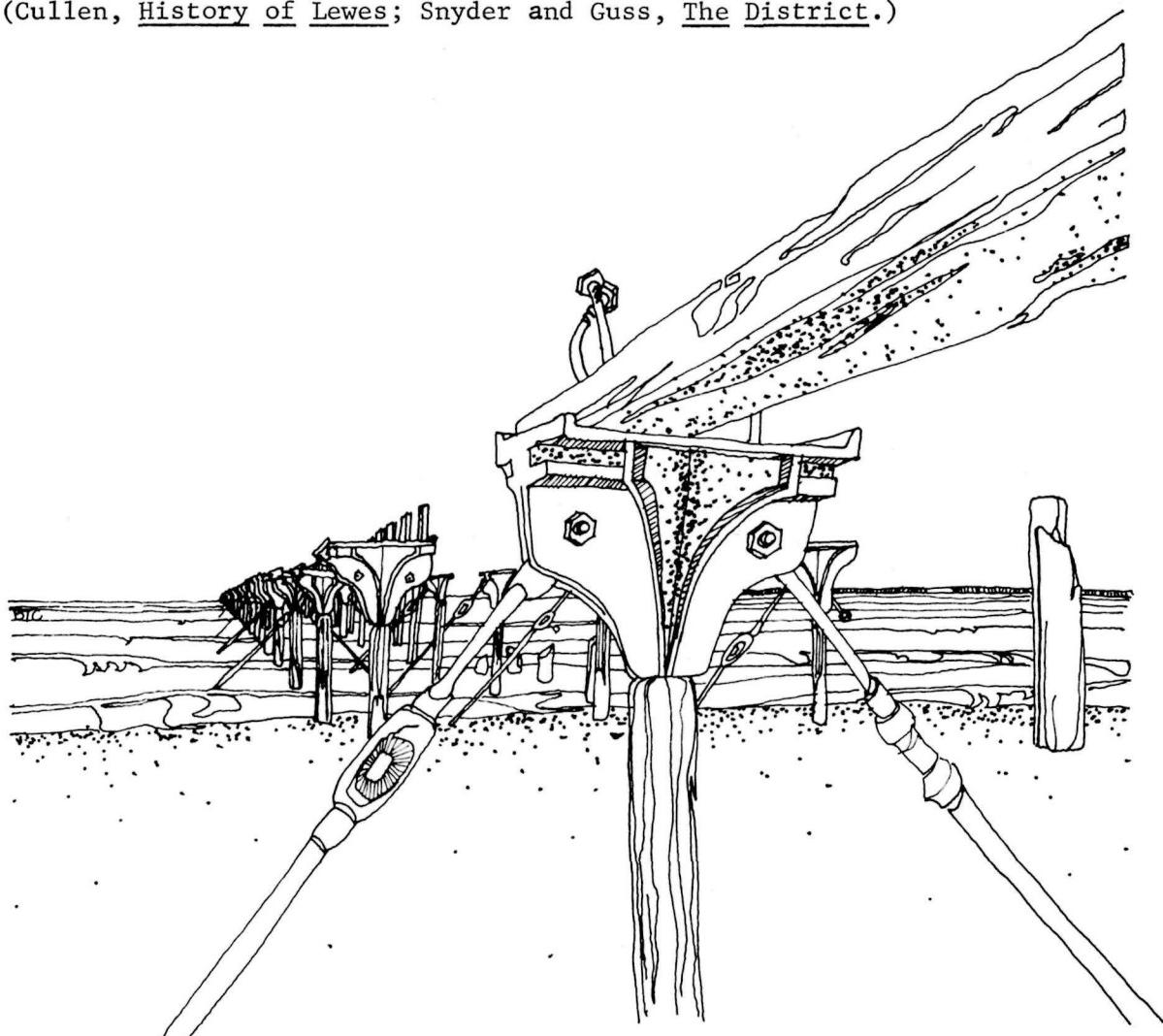
Construction of the Iron Pier began in 1871, one year after it was authorized, and the first pile was driven in April 1872. In 1882 it was com-

S U S S E X C O U N T Y

Transportation (cont'd)

THE IRON PIER (cont'd)

pleted, at a total cost of \$358,339.40. The pier extended 1700 feet to a water depth of 22 feet. Originally constructed of wrought iron screw pile shafts and a superstructure of pine timber, it was "repaired" in 1880 when much of the timber superstructure was replaced. The Iron Pier was built to improve the port facilities of the Lewes-Henlopen area. Specifically, it was intended, in 1870, to carry the track of the Junction and Breakwater Railroad. By the time it was ready for service, the Iron Pier was obsolete. During its construction railroad development had advanced greatly and the freight equipment of the later decade proved too heavy for the structure to support. The Pier stands in ruins today. (Cullen, History of Lewes; Snyder and Guss, The District.)



S U S S E X C O U N T Y

Transportation (cont'd)

LAUREL RAILROAD STATION

Town Hall

Laurel

Laurel

18.450130.4267170

Built in 1907 by the Delaware Railroad, this brick station was sold to Penn Central. Subsequently sold to the town of Laurel, it has served as the local town hall since 1972. Though its exterior remains in good condition, the interior has been changed to accommodate new tenants.

MILFORD RAILROAD STATION

Causey Street and Maple Avenue

Milford

Milford

18.462480.4306800

The Milford Railroad Station, a small brick passenger station, was built in 1875. It served the Junction and Breakwater Railroad Company, founded in 1859, which connected Milford to the Delaware Railroad.

MISPILLION LIGHTHOUSE AND KEEPER'S QUARTERS

Mouth of Mispillion River,

at the Delaware Bay

Milford

Mispillion River

18.472660.4310770

First built in 1831, the Mispillion Lighthouse was rebuilt in 1843. Taken out of service in 1857, restored by congressional order in 1873, it has since been replaced by a simple coastal light. The light and equipment are gone but much of the interior construction remains: two brick fireplaces, a spiral stairway, the framing. The current owners are now tearing out sections to convert it into private living quarters.

PAGAN CREEK DIKE

Pagan Creek near New Road

Lewes

Lewes

18.485720.4291100

The Pagan Creek "Dike" is actually a causeway. In the 17th century the terms were interchangeable to describe an earthwork built for drainage and/or transportation. One of the oldest surviving road structures in the State, it is approximately 700 feet long, nine to ten feet wide at the top, and is made of clay and loam on a sand foundation (revealing

S U S S E X C O U N T Y

Transportation (cont'd)

PAGAN CREEK DIKE (cont'd)

Dutch, rather than English, construction techniques). Apparently built before 1670 to link the West India Company fort with the hinterland beyond Pagan Creek, it has been abandoned since colonial times and has remained virtually unchanged. (The Archeologist, Vol. VII, #2, and Vol. X, #1; NR.)

SEAFORD FREIGHT STATION
2 or 3 blocks South of
High Street on
Nanticoke River
Seaford

Seaford East
18.446490.4276590

The only Delaware express station operating south of Dover, the Seaford station was built around 1900. It is a clapboard single-story structure, partially covered with asbestos shingles.

SEAFORD RAILROAD STATION
2 or 3 blocks South of
High Street on
Nanticoke River
Seaford

Seaford East
18.446520.4276600

Preceded by an earlier building, this station was built in 1905 as a passenger station. It is now an operating station in good condition. A brick structure in five-course common bond pattern, it has a rectangular bay with double front windows and narrow side sashes. Large structural brackets brace the overhang.

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